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Infrastructure Management & Monitoring
For *Business-Critical Continuity™*

Liebert® iCOM-DO™

User Manual

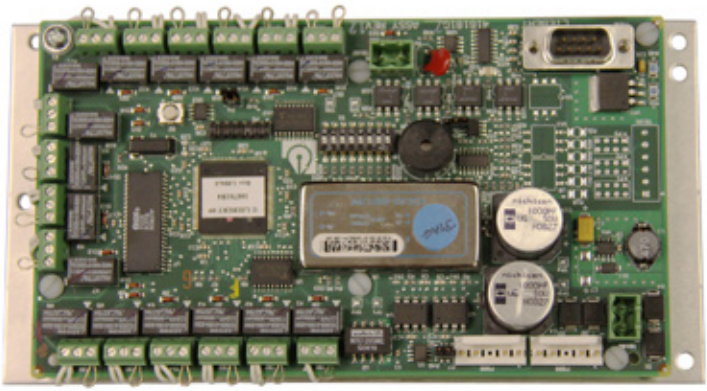

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 INSTALLATION 2

2.1 Retrofit Installation 2

2.1.1 System Wiring—All Liebert iCOM Controllers 2

3.0 CONFIGURATION 4

3.1 DIP Switch Settings 4

3.2 Diagnostic LEDs 4

3.3 Piezoelectric Horn 4

4.0 OUTPUTS - STATUS AND ALARMS 5

FIGURES

Figure 1 Typical system configuration 1

Figure 2 ELV wiring for Liebert iCOM-DO 3

TABLES

Figure 3 Typical system configuration 1

Figure 4 ELV wiring for Liebert iCOM-DO 3

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1.0 INTRODUCTION

The Liebert iCOM Discrete Output interface card provides discrete outputs for Liebert Precision Cooling units equipped with a Liebert iCOM control. Operating status is monitored and critical alarms are communicated via contact closure. Any alarm monitor, I/O panel, autodialer or monitoring system can be used to monitor your Liebert unit.

The Liebert iCOM-DO card is available as a factory-installed option or in a kit for field-retrofit to Liebert Precision Cooling units equipped with the Liebert iCOM control.

Figure 1 Typical system configuration

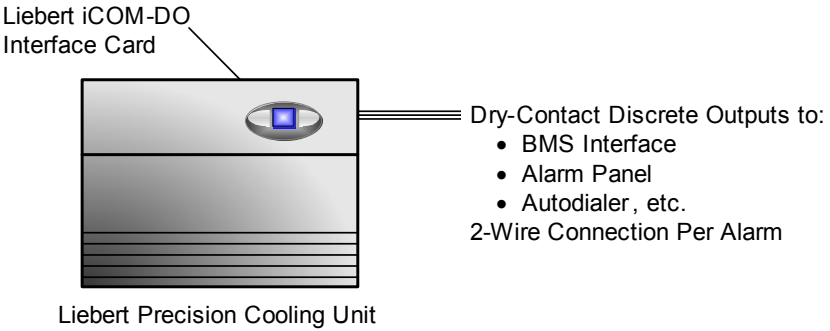

Table 1 Specifications

Electrical Requirements	
Voltage	24VAC or 24VDC, ±20% 50/60 Hz, Single Phase
Power	10W maximum
Environmental Conditions, °C (F)	
Operating Temp.	5 to 55 (41 to 131)
Storage Temp.	-20 to 70 (-4 to 158)
Humidity:	10% to 95% RH (non-condensing)
Dimensions, mm (inches)	
Card Only	178 x 102 x 38 (7.0 x 4.0 x 1.5)
Shipping	248 x 178 x 64 (9.75 x 7.0 x 2.5)
Weight, kg (lb)	
Net	0.1 (0.2)
Shipping	0.6 (1.3)
Compatibility	Precision Cooling units with Liebert iCOM control and software version # PA1.04.022 STD or newer
Discrete Outputs	16 Form-C Contact Closures (SPDT Relays, energize to alarm) Rating: 1A @ 30VDC; 0.46A @ 65 VDC; 0.46 A @ 150VAC 16-24 AWG (1.5mm^2 - 0.25mm^2)wiring

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2.0 INSTALLATION

As a retrofit kit, the Liebert iCOM-DO is secured to a metal mounting plate. The mounting plate is then attached to a flat metal surface in the extra low voltage (ELV) section of the Liebert unit.

If the Liebert iCOM-DO was ordered as a factory-installed option, proceed to **3.0 - Configuration**.

2.1 Retrofit Installation

Position the Liebert iCOM-DO in the low voltage/control cavity of the Liebert Precision Cooling unit. Use three #8 x 3/8" sheet metal screws to attach the mounting plate to the Liebert Precision Cooling unit.

2.1.1 System Wiring—All Liebert iCOM Controllers

Two wiring harnesses are included with the retrofit kit, one for the power connection and one for CAN communication. Refer to **Figure 2** for details on routing the wiring.

Power Connection

The harness supplied with the Liebert iCOM-DO interface card (P/N 159084G1) is equipped with three connectors, one at either end of the harness and one in the middle. The harness taps power from the 24VAC input to the control board of the Liebert Precision Cooling unit.

To connect this power to the Liebert iCOM-DO:

1. Locate the connector containing the two red wires plugged into P43 on the control board and unplug it. Reconnect it to the connector in the middle of the supplied harness.
2. Plug one end of this harness into P43 on the control board and the other end into TB100 of the Liebert iCOM-DO.

NOTICE

Risk of improper wiring. Can cause equipment damage.

Do not tap power from the auxiliary 24VAC Terminals T5/G5 on the Liebert iCOM. Powering from this source might damage the controller and interface card.

Communication Connection

The second wiring harness provided (P/N 197975G1) has a connector fitted at either end and is the communications connection between the unit microprocessor and the Liebert iCOM-DO.

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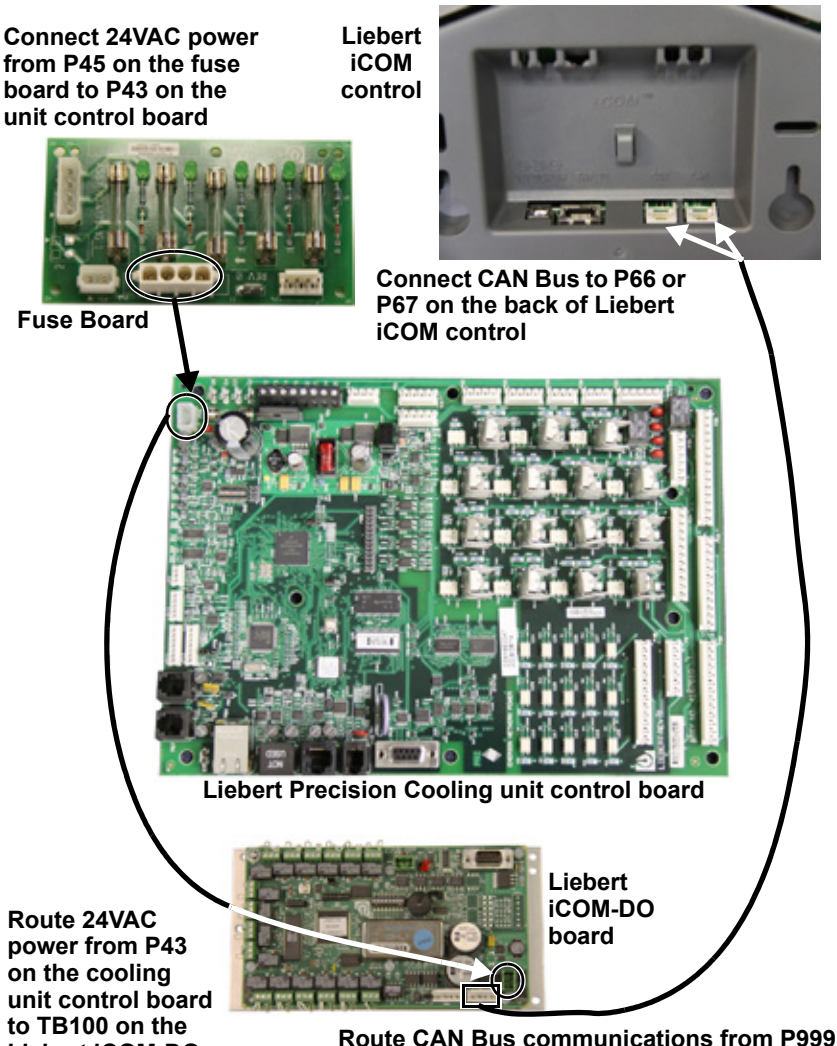
To put it in the system:

1. Connect the RJ-type connector to the Liebert iCOM control board at either the P66 or P67 connection if unit is equipped with a small display. If unit is equipped with a large display, connect the RJ-type connector to the CAN connector on the back of the large display.
2. Connect the MTA-style connector of the wire harness to TB102 of the Liebert iCOM-DO interface card.

Figure 2 ELV wiring for Liebert iCOM-DO


Connect 24VAC power from P45 on the fuse board to P43 on the unit control board
Liebert iCOM control
Fuse Board
Connect CAN Bus to P66 or P67 on the back of Liebert iCOM control
Liebert Precision Cooling unit control board
Liebert iCOM-DO board
Route 24VAC power from P43 on the cooling unit control board to TB100 on the Liebert iCOM-DO board
Route CAN Bus communications from P999 on the Liebert iCOM-DO board to P66 or P67 on the back of the Liebert iCOM control

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3.0 CONFIGURATION

The Liebert iCOM-DO can function with either Liebert SiteLink® or Liebert IntelliSlot® monitoring cards. The Liebert iCOM-DO outputs can be configured only from the large Liebert iCOM display. The small Liebert iCOM display cannot be used to configure the Liebert iCOM-DO outputs. Refer to the Liebert iCOM manual, SL-18835, for details. The document is available at Liebert's Web site: **www.liebert.com**

3.1 DIP Switch Settings

The Liebert iCOM currently supports one connected Liebert iCOM-DO. The Liebert iCOM-DO is configured at the factory with all switches in the OFF position (default is OFF). No DIP switch changes are necessary.

The Liebert iCom control uses the default address and will automatically detect the Liebert iCOM-DO when it is connected. Refer to the Liebert iCOM manual for details.

3.2 Diagnostic LEDs

LEDs are provided on the interface card to provide information for diagnostic purposes. The following table summarizes their indications:

Table 2 Diagnostic LED indications

LED Identifier	Description
DS1	CAN Receive Active
DS2	CAN Transmit Active
DS3	+12V Isolated Power On
DS4	24VAC or 24VDC Power Supply On
DS5	+5V Logic Power On

3.3 Piezoelectric Horn

The jumper, P5, located adjacent to the piezoelectric buzzer, is used to enable or disable operation of the audible alarm. The card ships with the buzzer disabled. With the jumper connecting the two pins of P5, the audible alarm is enabled. The buzzer will be activated whenever there is an alarm for TB1-TB15.

NOTE

The buzzer should be enabled only for use during troubleshooting.

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4.0 OUTPUTS - STATUS AND ALARMS

A three-position screw terminal block is provided for each Form-C contact closure output. The wiring connection is uniform for all 16 outputs:

Position 1: Common

Position 2: Normally Closed

Position 3: Normally Open

Position 1 is the left-most connection, and is marked by a triangular symbol on the circuit board. The outputs are not supervised (except as noted below); thus, the N.O. contact would be closed only upon an active/alarm condition.

Refer to **Table 3** for the standard mapping of status and alarms. The output terminal block (TB) for each alarm output is configurable. For details, refer to the Liebert iCOM manual, SL-18835, available at Liebert's Web site: **www.liebert.com**

NOTE

The top of the screw terminals cannot be used to obtain contact when using a meter to verify the status of a contact closure. The meter must contact the terminal block in the openings where the wires are inserted.

Table 3 Standard mapping of status and alarms

Terminal Block	Description	Liebert iCOM
TB1	Cooling Status	✔
TB2	Heating Status	✔
TB3	Humidifying Status	✔
TB4	Dehumidifying Status	✔
TB5	High Temperature	✔
TB6	High Humidity	✔
TB7	Low Temperature	✔
TB8	Low Humidity	✔
TB9a	High Head Pressure C1	✔
TB9b	High Head Pressure C2	✔
TB10	Loss of Airflow	✔
TB11	Change Filters	✔
TB12	Water Detected/Customer Alarm 1	✔
TB13	Customer Alarm 2	✔
TB14	GLYCOOL Status	✔
TB15	Unit On	✔

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SL-28096_REV1_07-10

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